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PCOM-C600

User's Manual

Version 0.1

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How to Use This Manual

The manual describes how to configure out your PCOM-C600 to meet various operating requirements. It is divided into three chapters, with each chapter addressing a basic concept and operation of this COM Express Module.

Chapter 1 : Introduction. Presents what you have in the box and give you an overview of the product specifications and basic system architecture for this model of the evaluative board.

Chapter 2 : Mechanics. Describes the dimension of PCOM-C600 and guides to assemble Module and Carrier board.

Chapter 3 : Hardware. Shows the positions of jumpers, headers and connectors and mentions the default setting of jumpers and each connector pin definition.

The content of this manual and EC declaration document is subject to change without prior notice. These changes will be incorporated in new editions of the document. **Portwell** may make supplement or change in the products described in this document at any time.

Updates to this manual, technical clarification, and answers to frequently asked questions will be shown on the following web site: http://www.portwell.com.tw

Chapter 1
Introduction

Portwell **COM E**xpress, an industrial computer platform in "Module board" and "Carrier board" architecture, equipped processor, chipset, memory and single Ethernet controller on it. The On-The-Shelf Module board allows users to create their own Carrier board easily and quickly since most critical parts are ready on Module board. PCOM Module board offers expansion interfaces such as PCI Express, SATA, LPC, LVDS, USB, SDVO and Audio etc. that could support variety functions depending on Carrier board design.

The Carrier board was customized design to fit in different mechanical requirements. In the meanwhile, its variety functions were also customized to meet the application. Compares to the platform that designed from nothing, COM Express architecture platform only needs to develop Carrier board. Users could keep their know-how which related to their core competence in the Carrier board.

The evaluative board described here is the COM Express Type 6 Rev 2.0 Reference Platform design for evaluation of COM Express Modules.

PCOM-C600 is a standard micro-ATX size carrier board designed to allow embedded application developers to get up and running quickly on the COM Express modular platform, giving them a head start on the total system design. Simply select any COM Express module, then Plug & Go.

1.1 Product Feature

- **Two 220-pin ROW Connector**
  Interface for COM Express module
- **Expansion Interfaces from Module**

- PEG (PCI Express Graphics) / SDVO (Serial Digital Video Output)
  These signals may be multiplexed with SDVO signals or defined as ordinary PCI Express signals.
- PCI Express
  One PCI Express x4 slot, one PCI Express x1 slot, One PCI Express x4 Slot for SDVO and one Mini-PCIE Slot.
- LVDS
  Dual channel LVDS interface support: 24 bit bpp
- Ethernet MDI
  One RJ45 jack integrated with transformer is implemented on PCOM-C600
- USB
  Support seven USB 2.0 ports

2 USB ports stacked with RJ45 on the rear.
3 onboard USB 2.0 headers.
1 onboard USB 3.0 header.

- SATA

Support 2 SATA Ports
Support 1 eSATA Port
Support 1 mSATA at Mini-PCIe slot.

- HDMI

Support 1 HDMI Port

- Display Port

Support 1 Display Port

- HDA

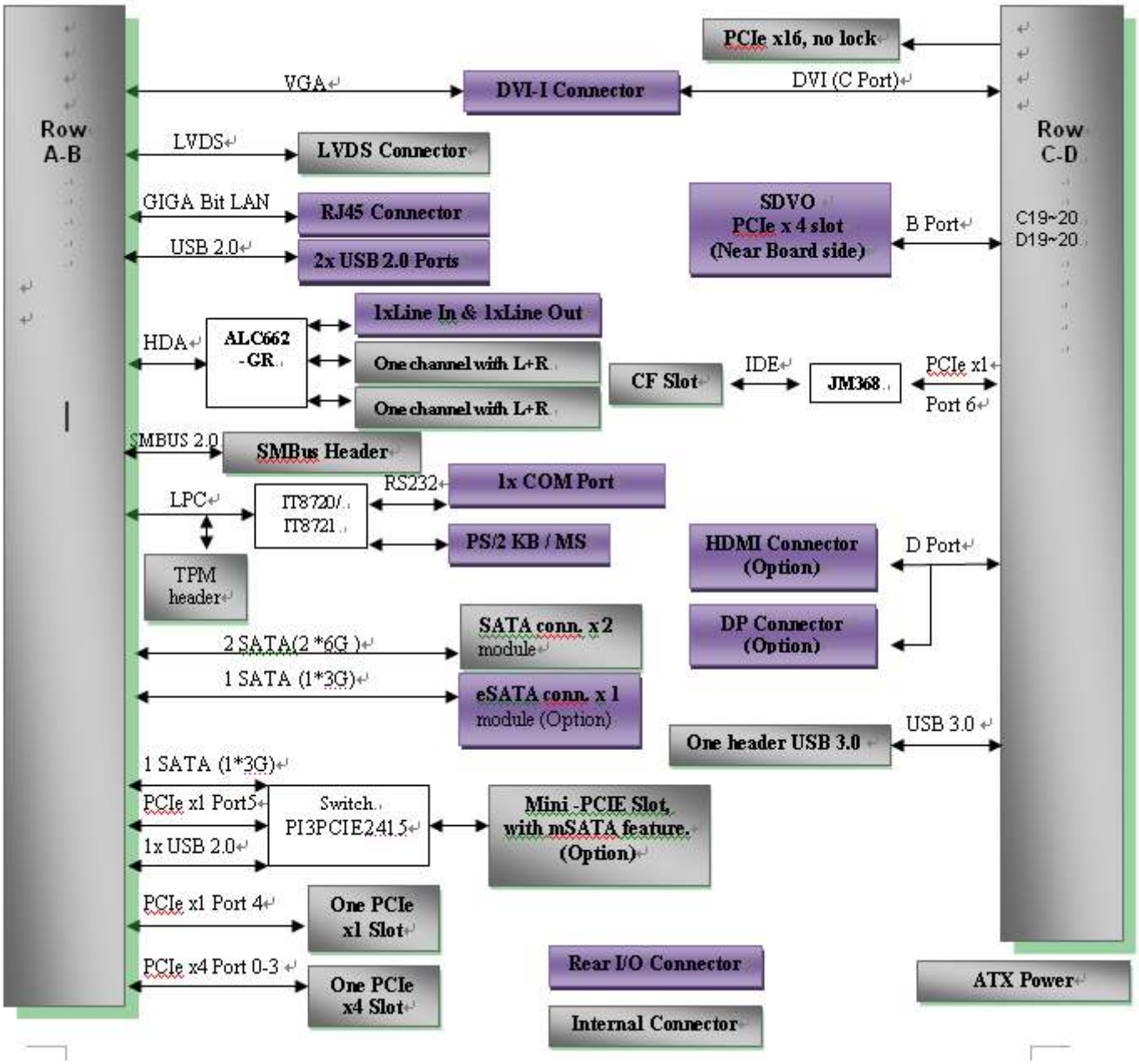
For ALC662-GR to support LINE-IN/LINE-OUT to a jack on rear.
One channel to a header for side surround.
One channel to a header for rear surround.

- LPC

For SIO, IT8721 to support legacy IO, one RS232 port on rear IO, one header for front panel IO including power button, power reset, IDE/SATA HDD and Suspend LED.

- **Outline Dimension (L X W):**
  244mm x 244mm
- **Operating Temperature:**
  -40°C ~ 80°C
- **Storage Temperature:**
  -40°C ~ 80°C
- **Relative Humidity:**
  0% ~ 90%, non-condensing

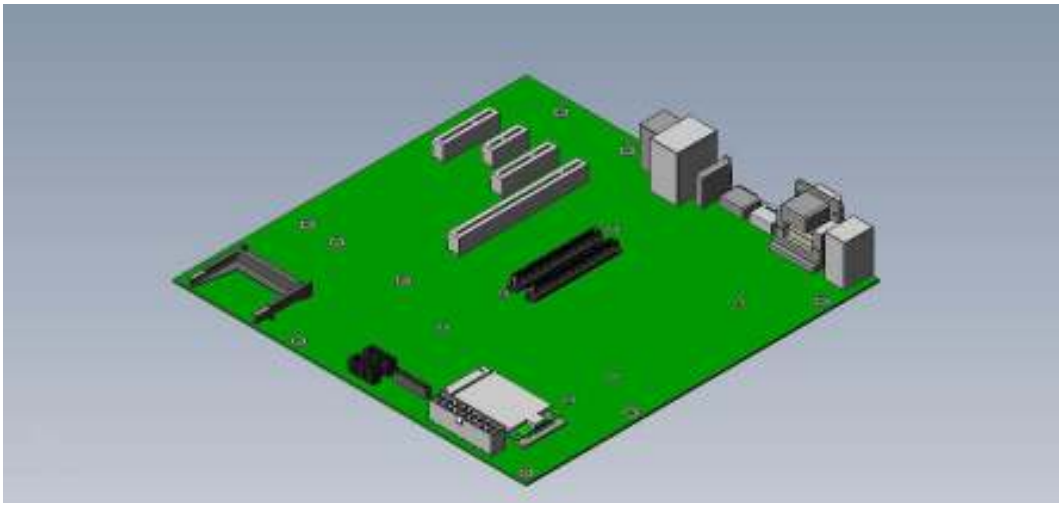
1.2 System Architecture

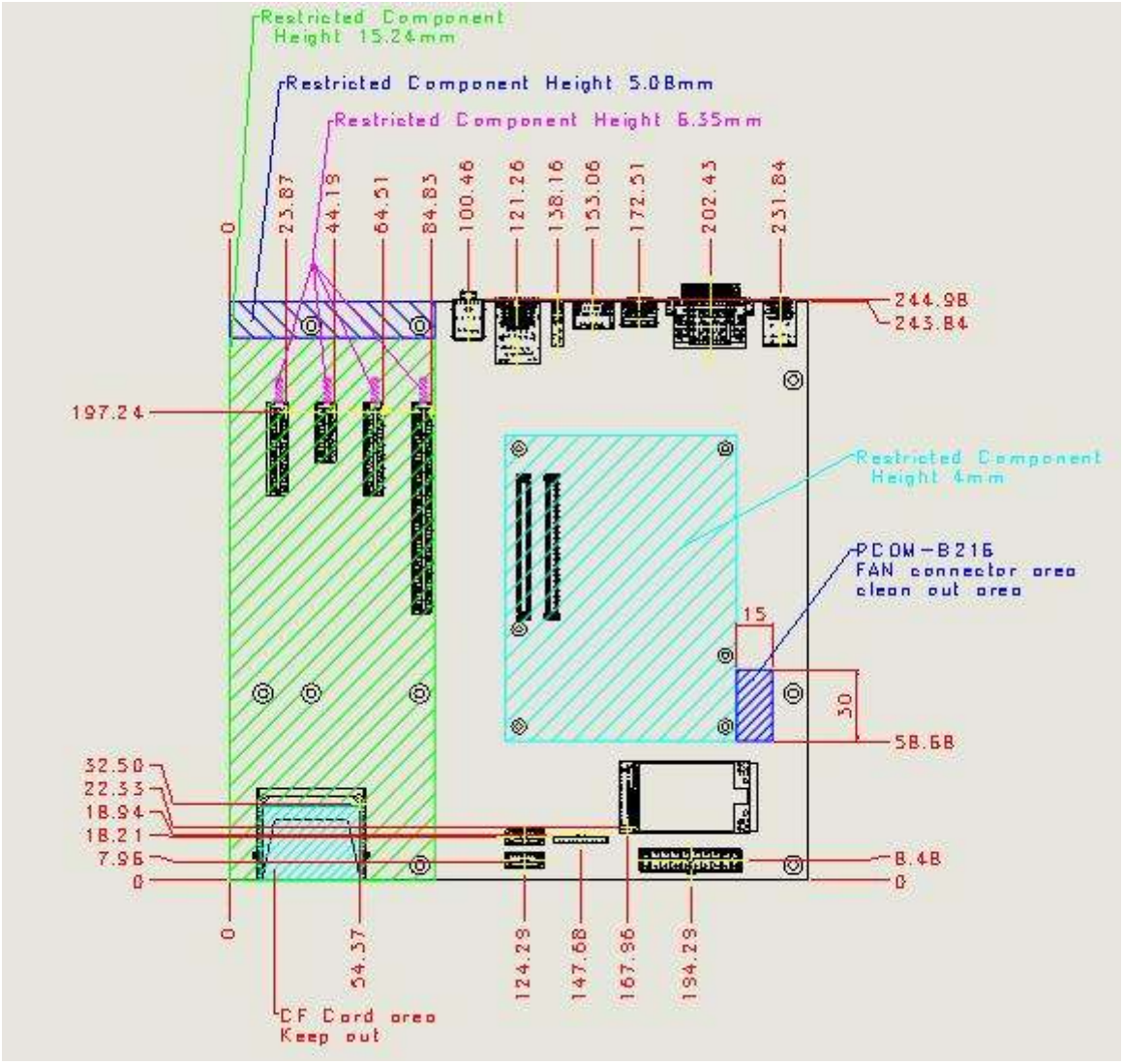


PCOM-C600 System Block Diagram

Chapter 2 Mechanics

2.1 Mechanical Drawing

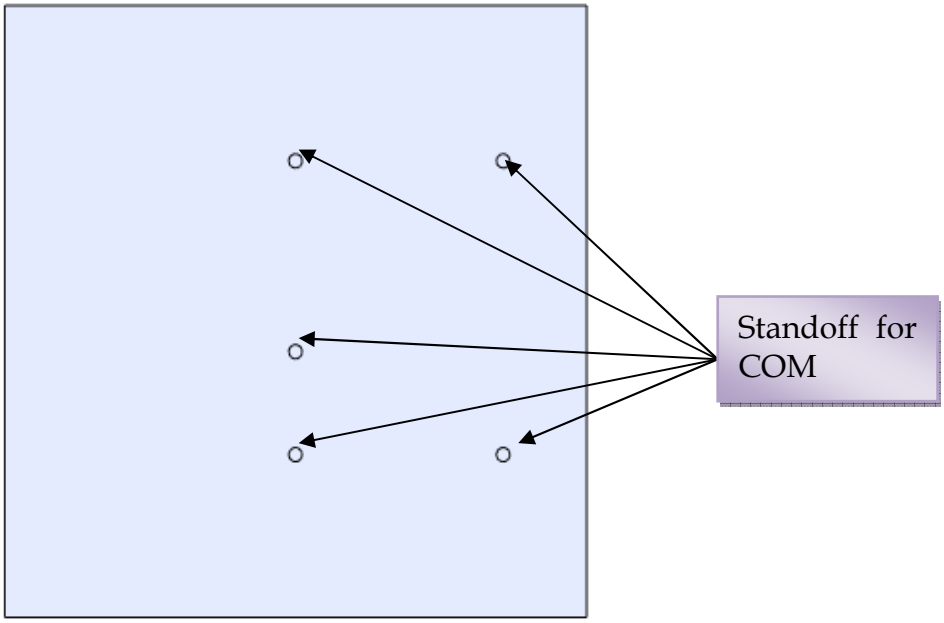




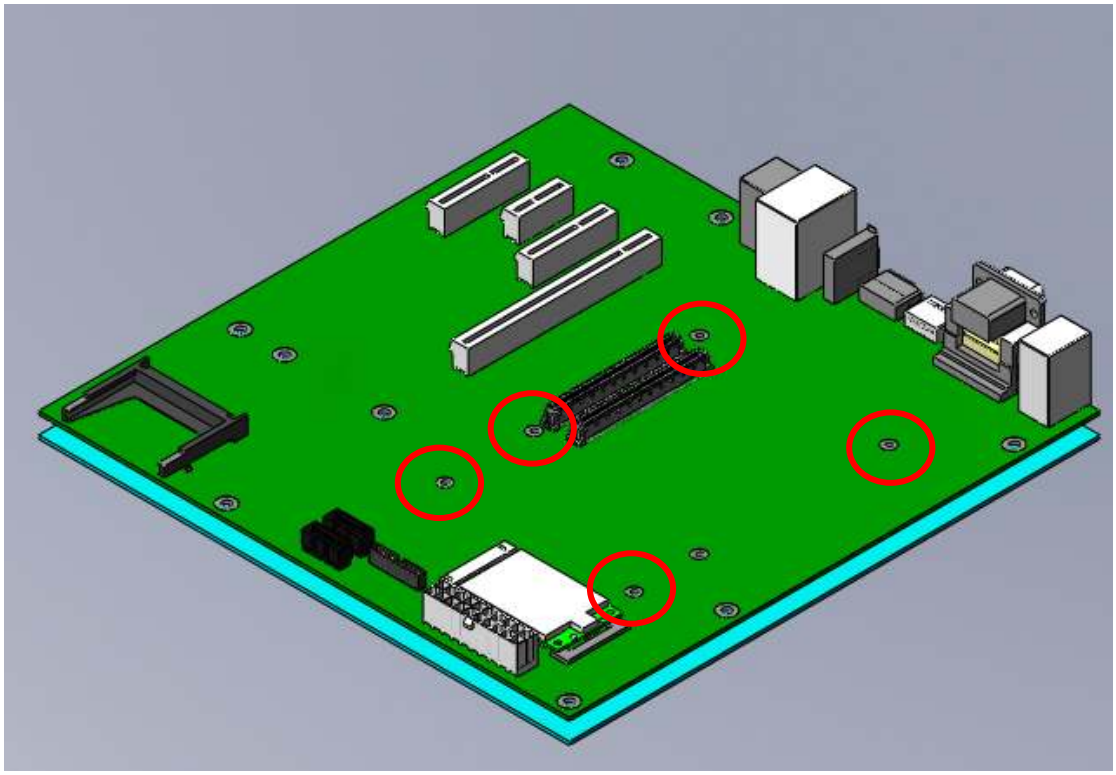
2.2 Module and Baseboard Assemble Guide

Type 1: With Standoff on the chassis

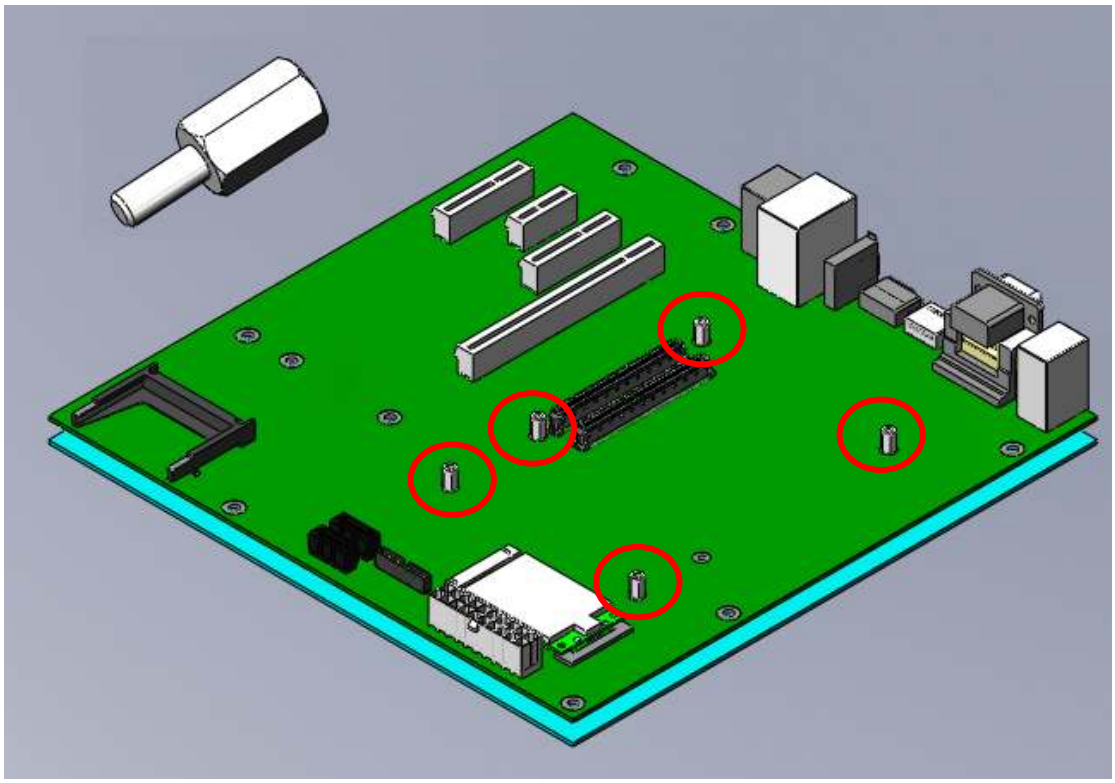
1. Check the standoff on the chassis base.



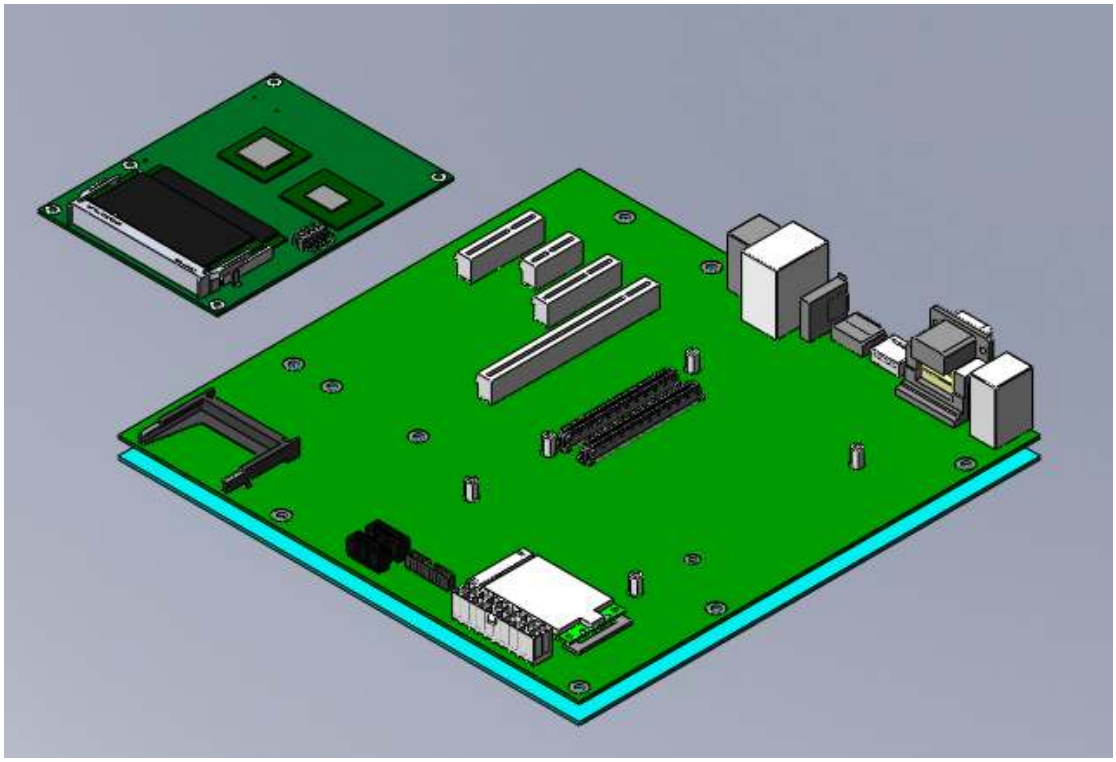
2. Put Carrier board on the chassis and check screw holes of Carrier board is leveled on the standoff of chassis.

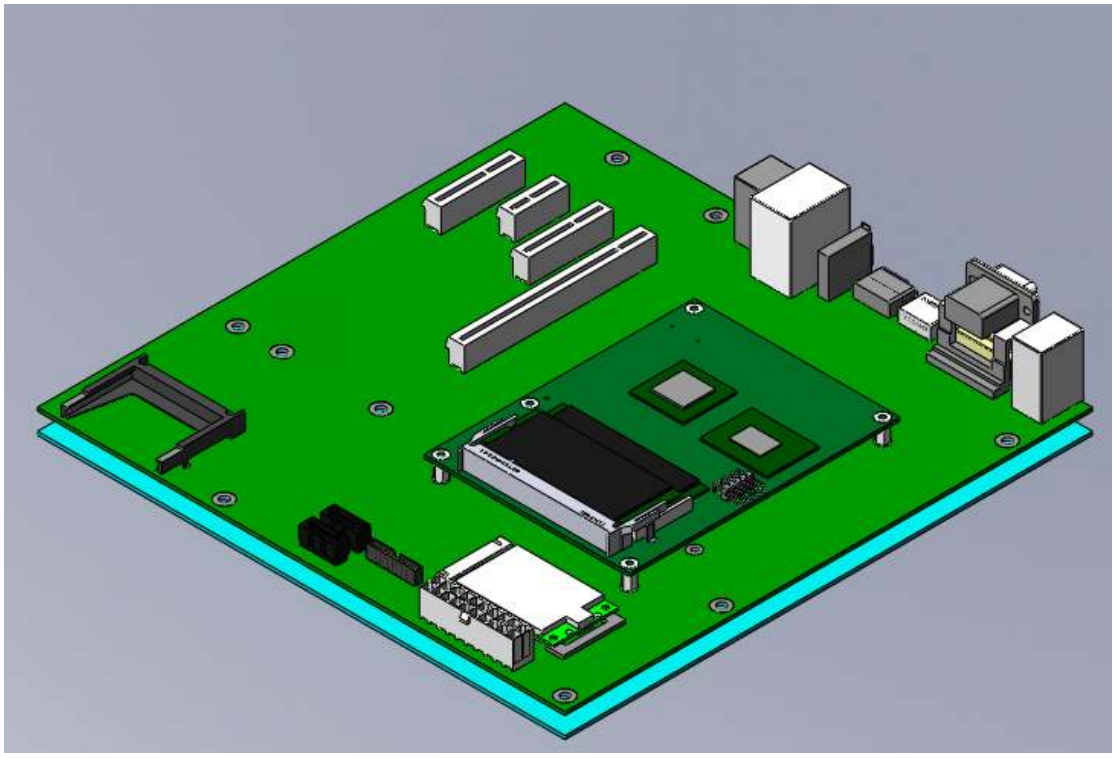


3. Screw 5 pieces M2.5 hexagon screws on the Carrier board.

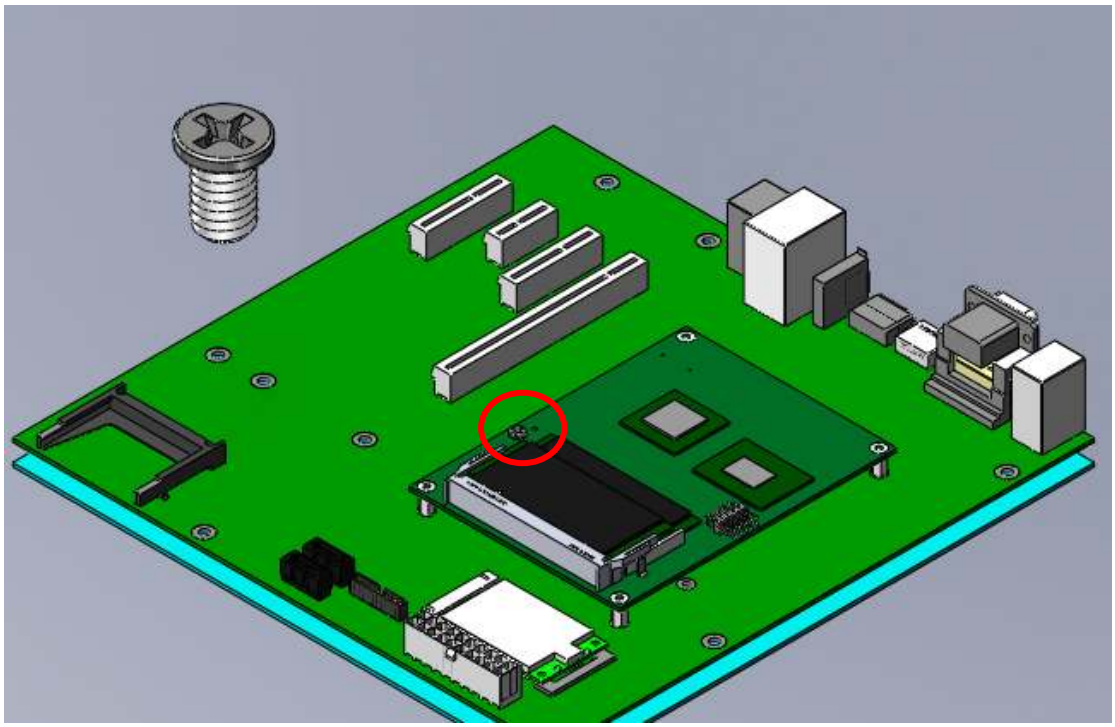


4. Add Module on the Carrier board

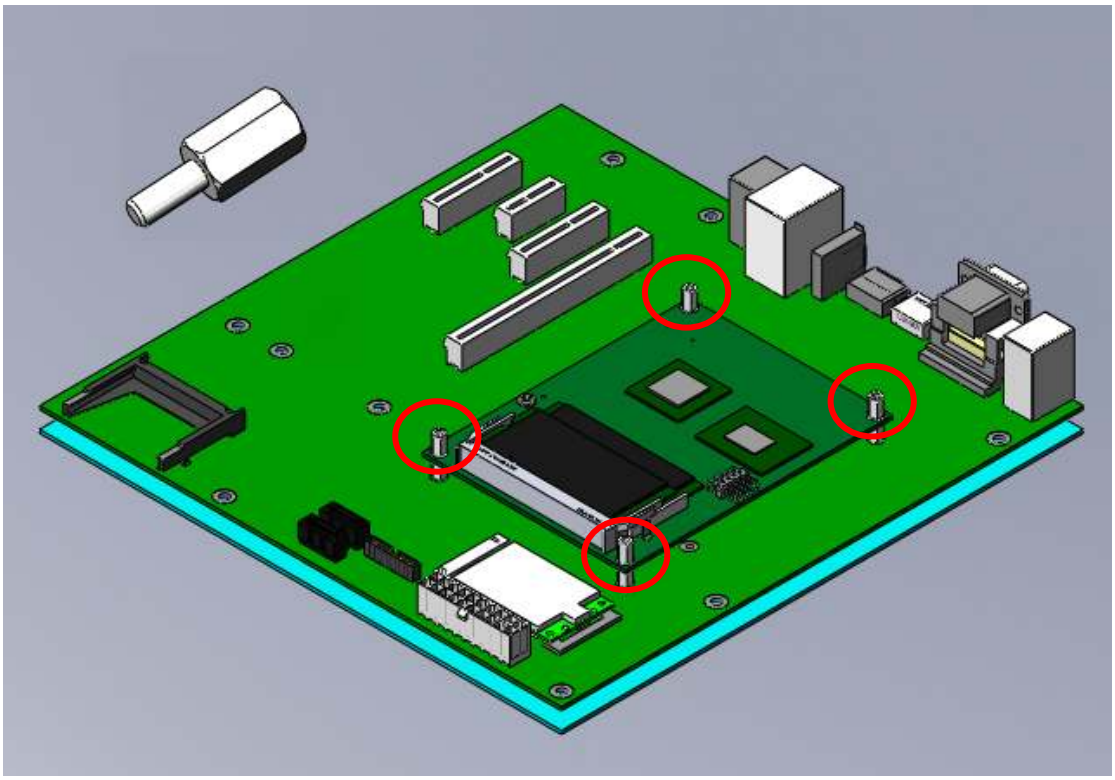




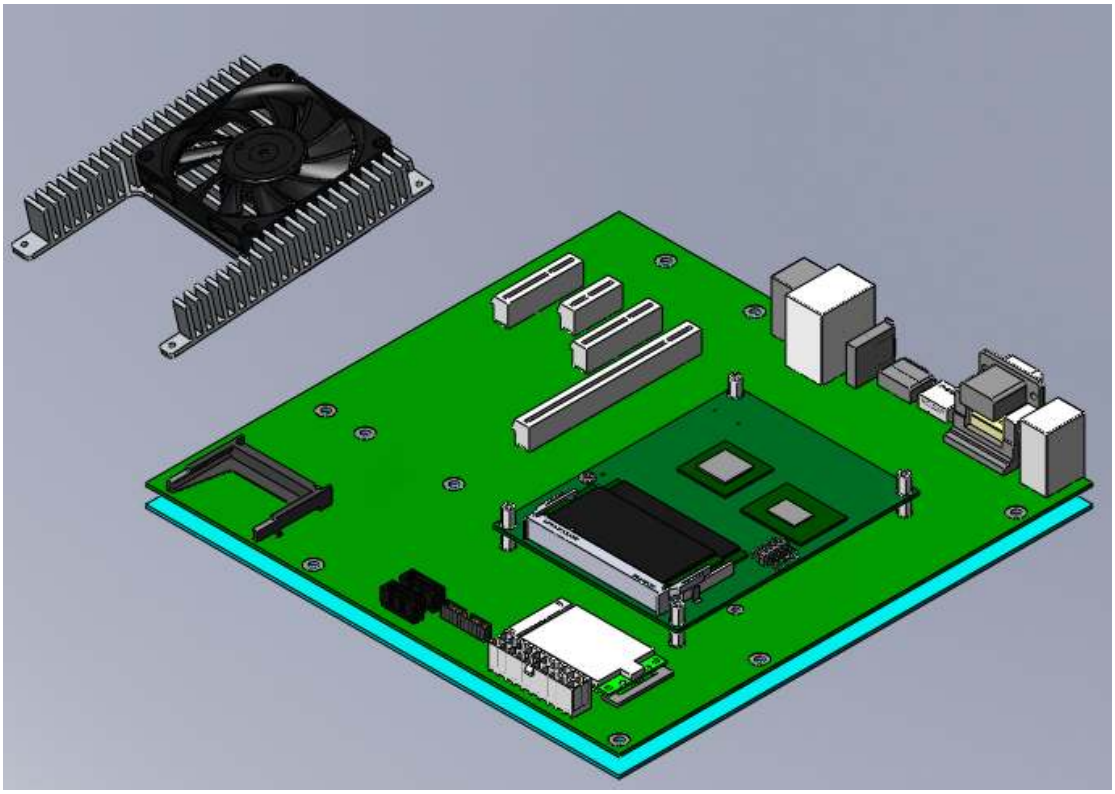
5. Screw one M2.5 screw

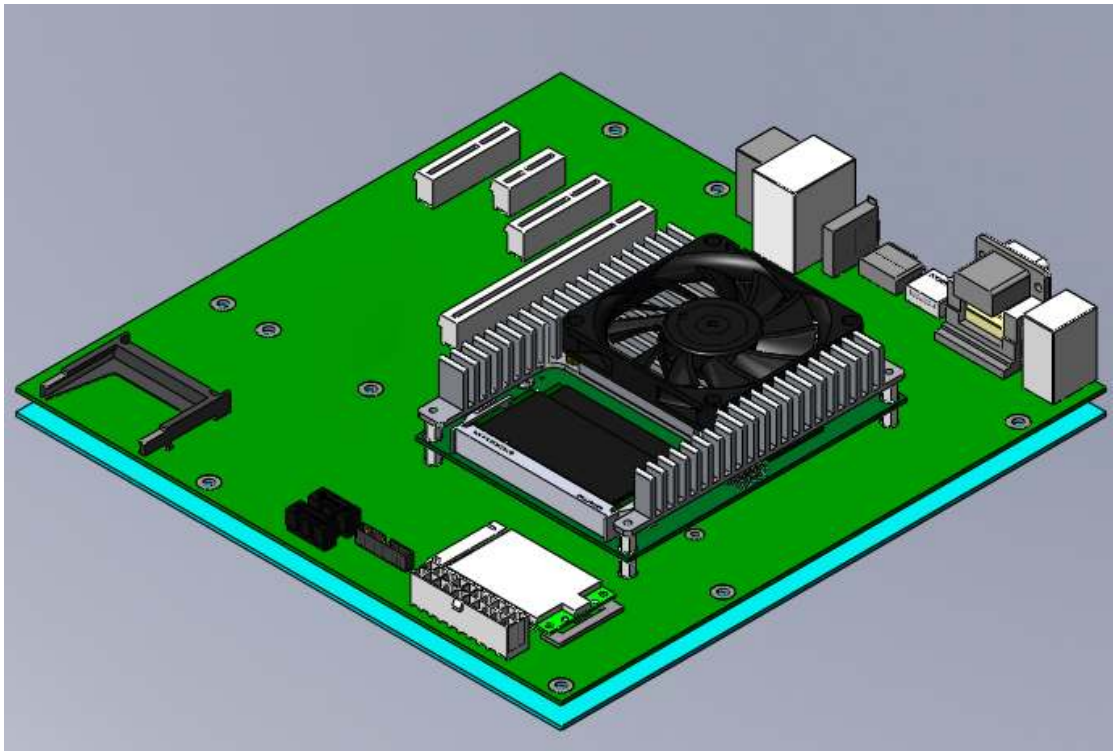


6. Screw 4 pieces M2.5 hexagon screws on Module

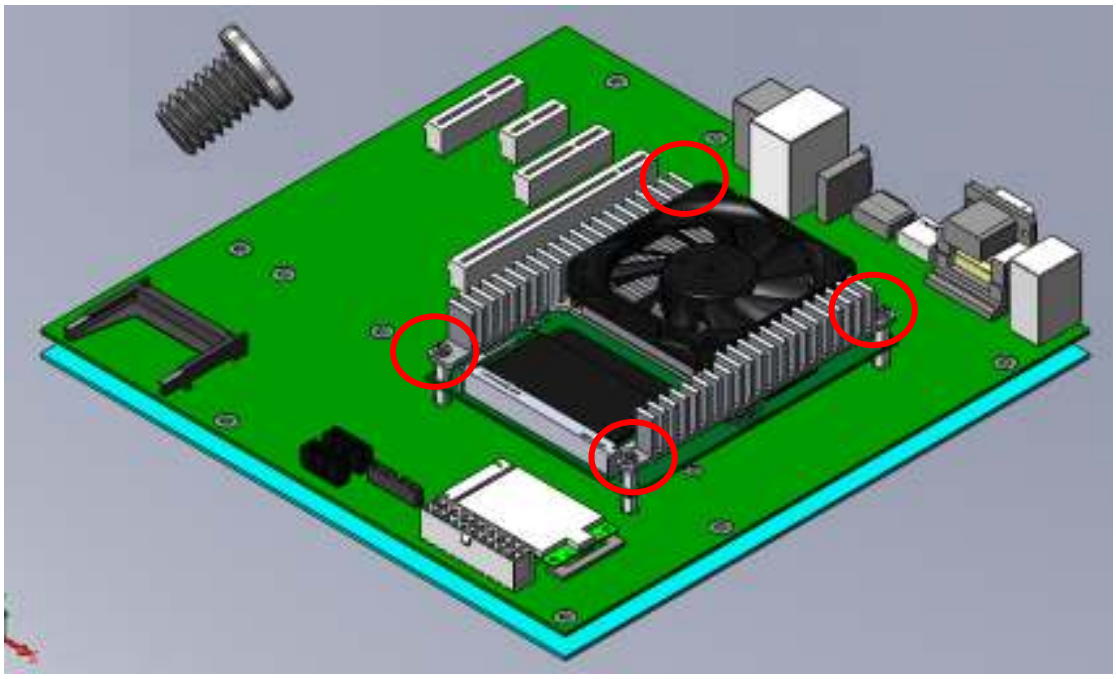


7. Add Heat spreader on Module



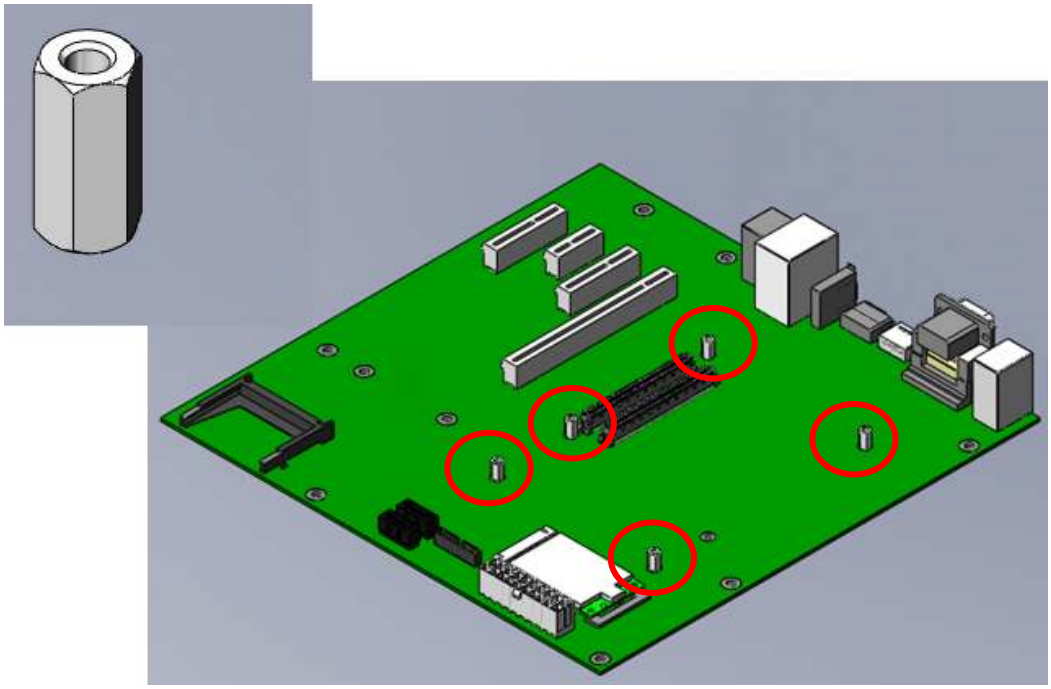


8. Assemble heat spreader by 4 pieces M2.5 screws

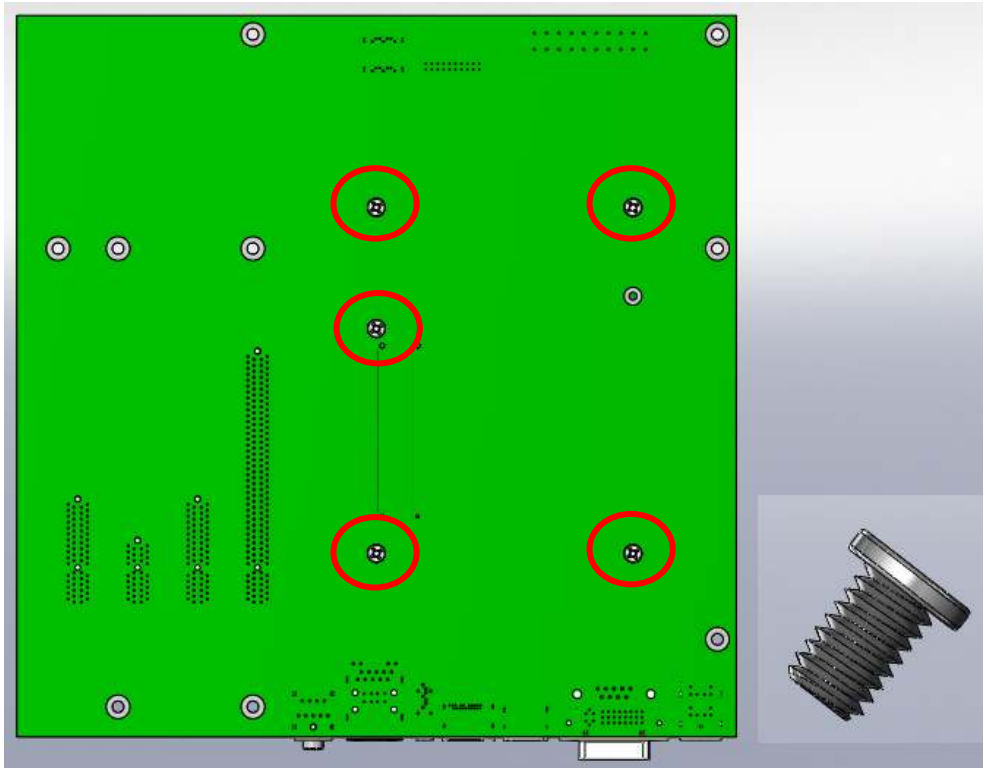


Type 2: Without Standoff on chassis

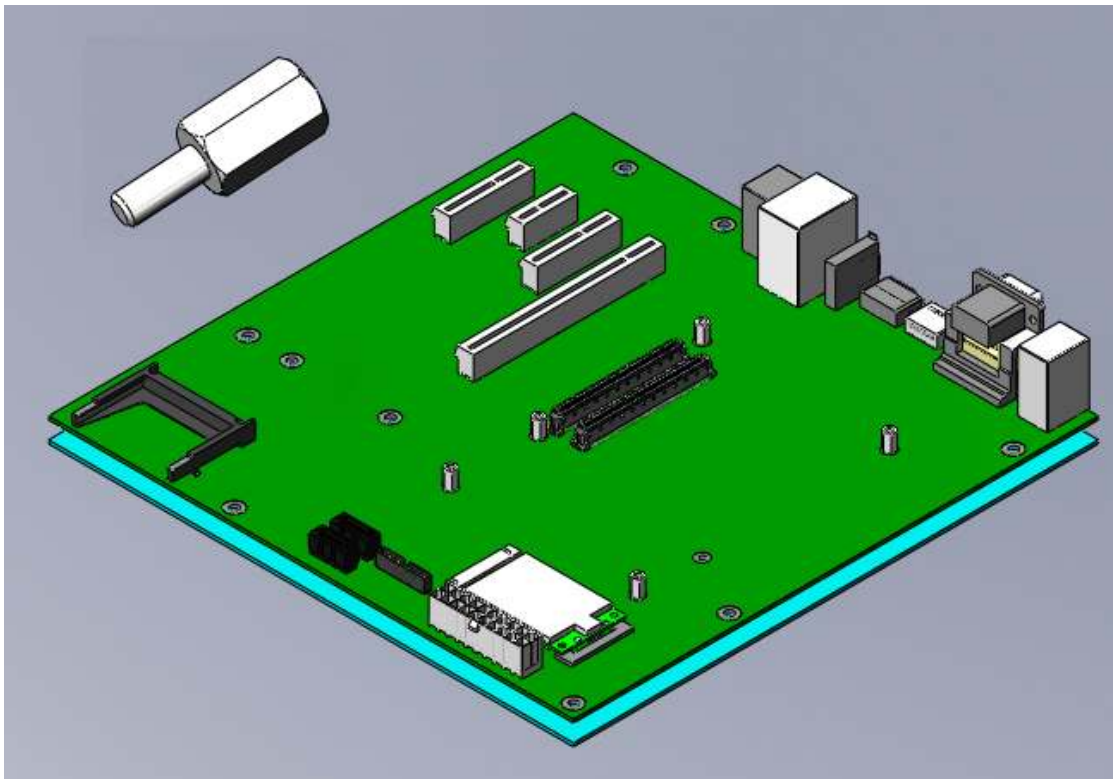
1. Put 5 pieces hexagon copper pillar on Carrier board



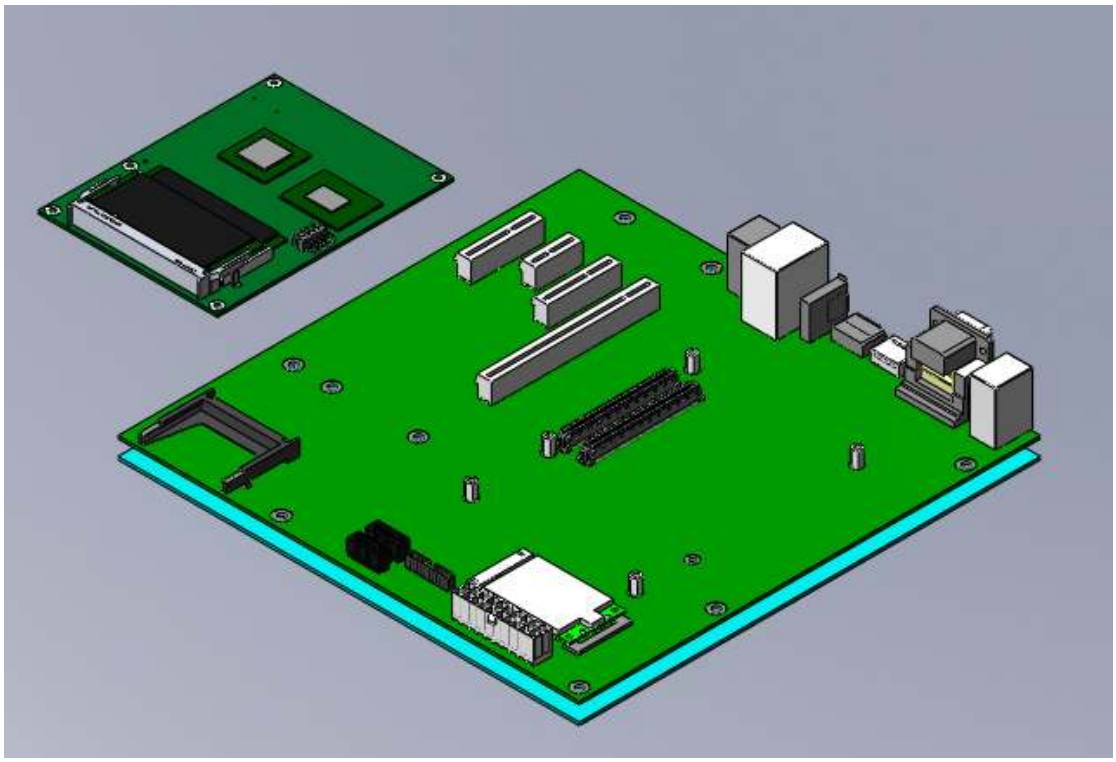
2. At the meantime, screw the hexagon copper pillar by 5 pieces screws from the back of Carrier board.

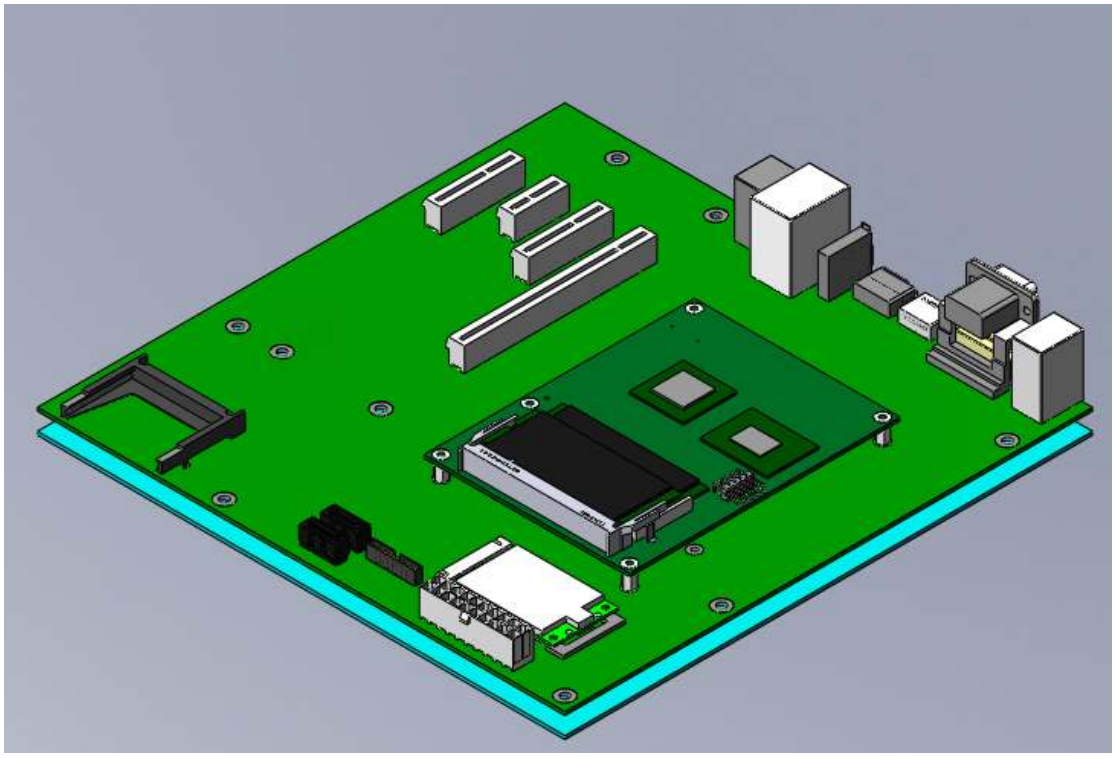


3. Put Carrier board on the chassis

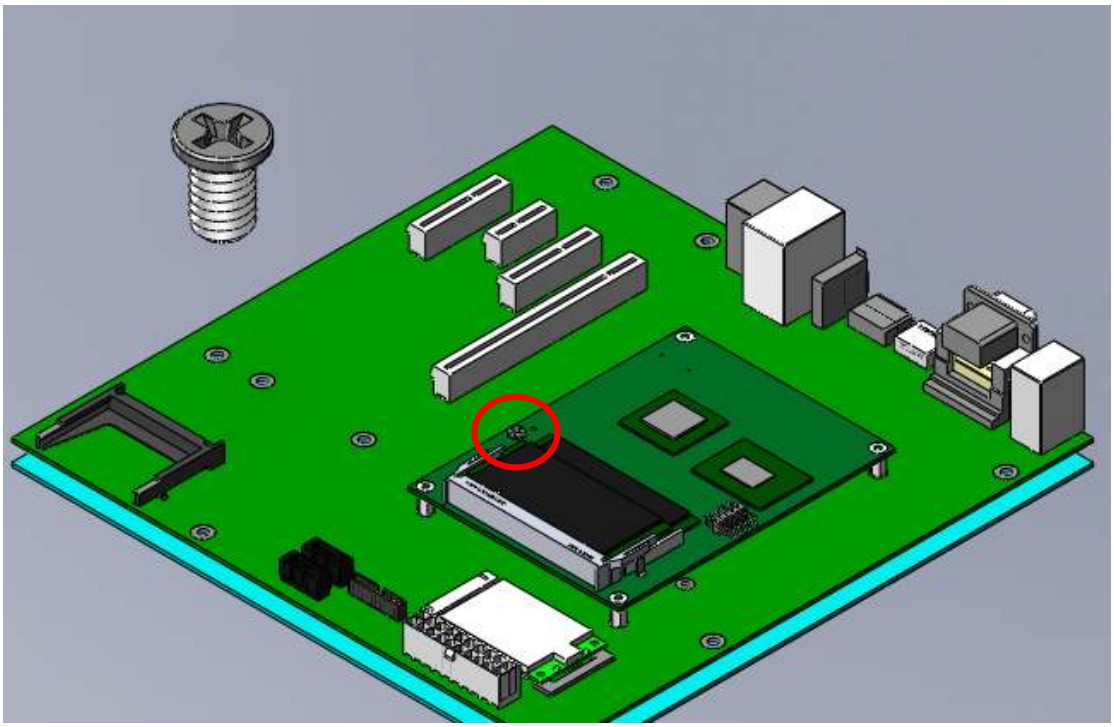


4. Assemble Module on Carrier board

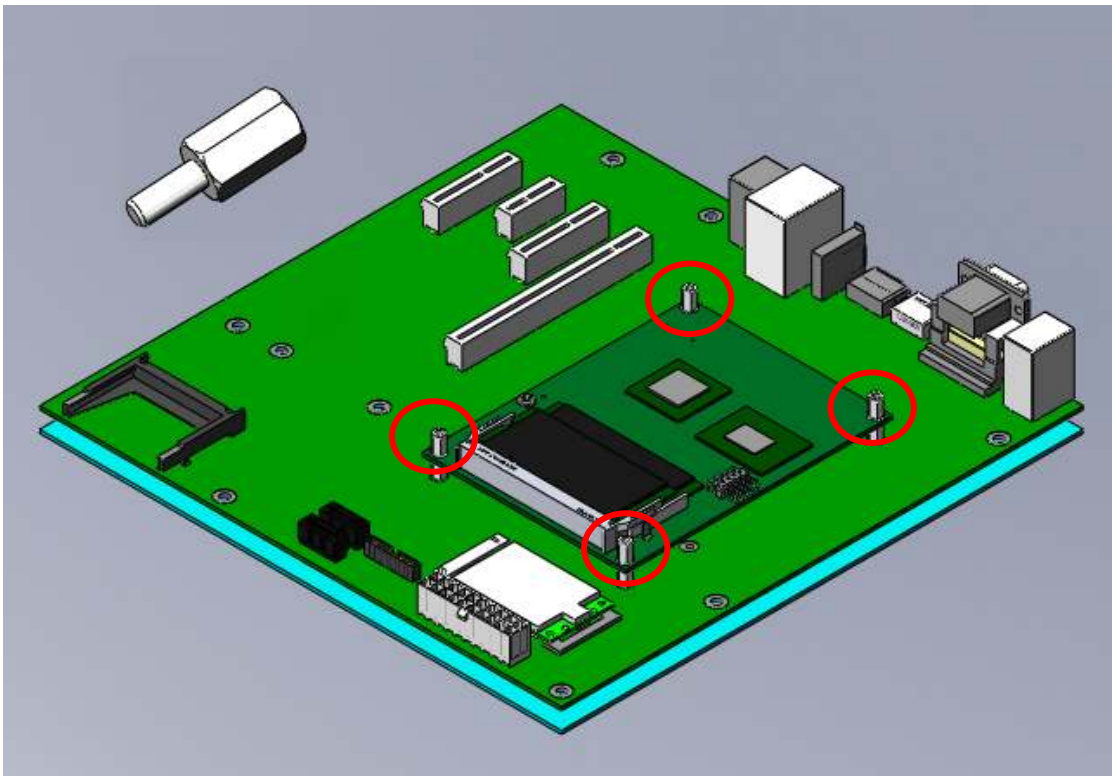




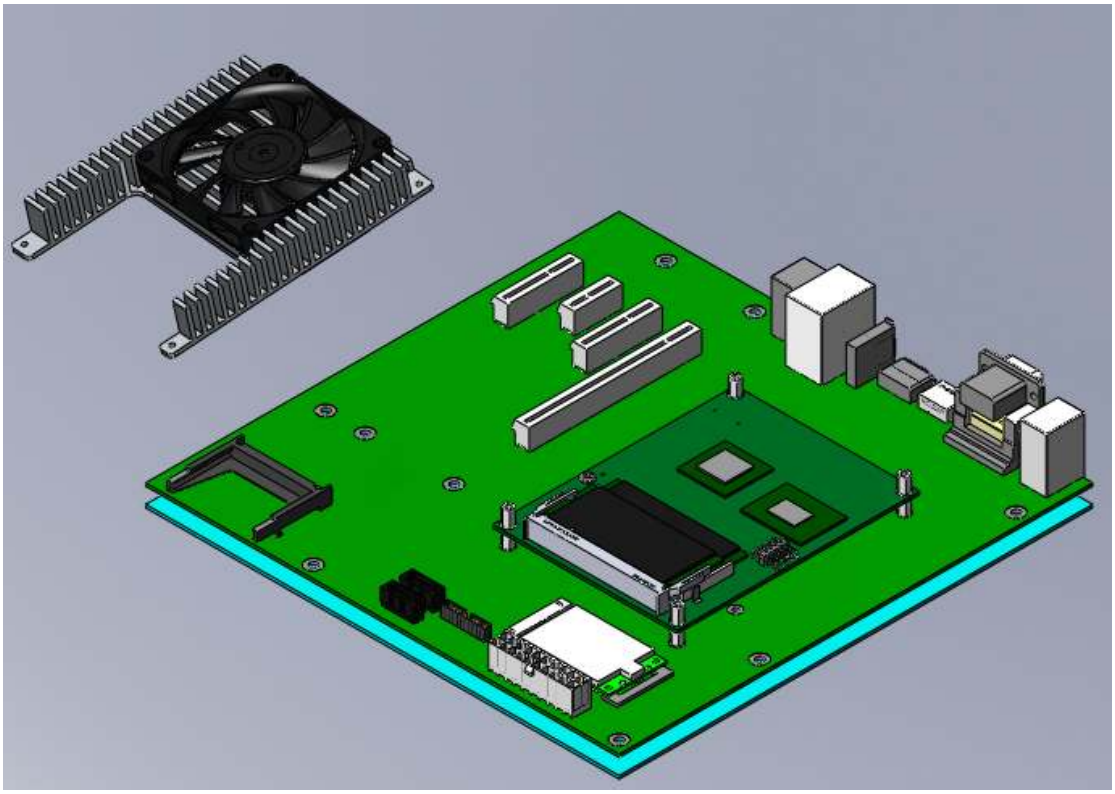
5. Screw one M2.5 screw

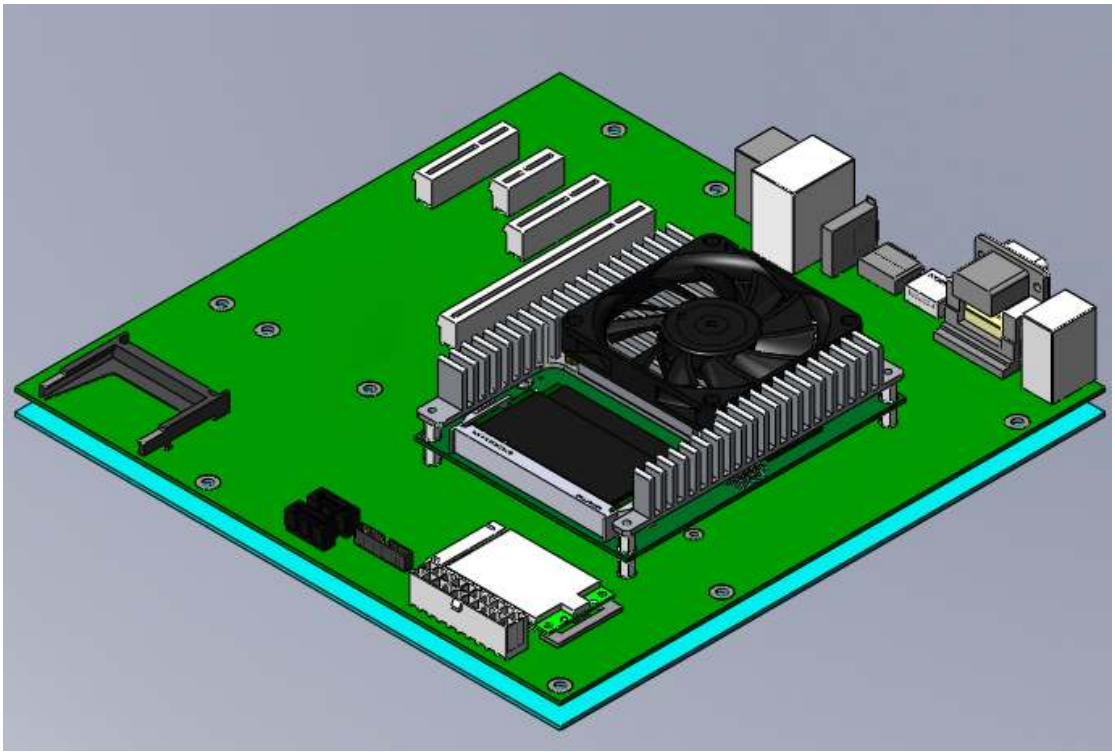


6. Screw 4 pieces M2.5 hexagon screws on Module

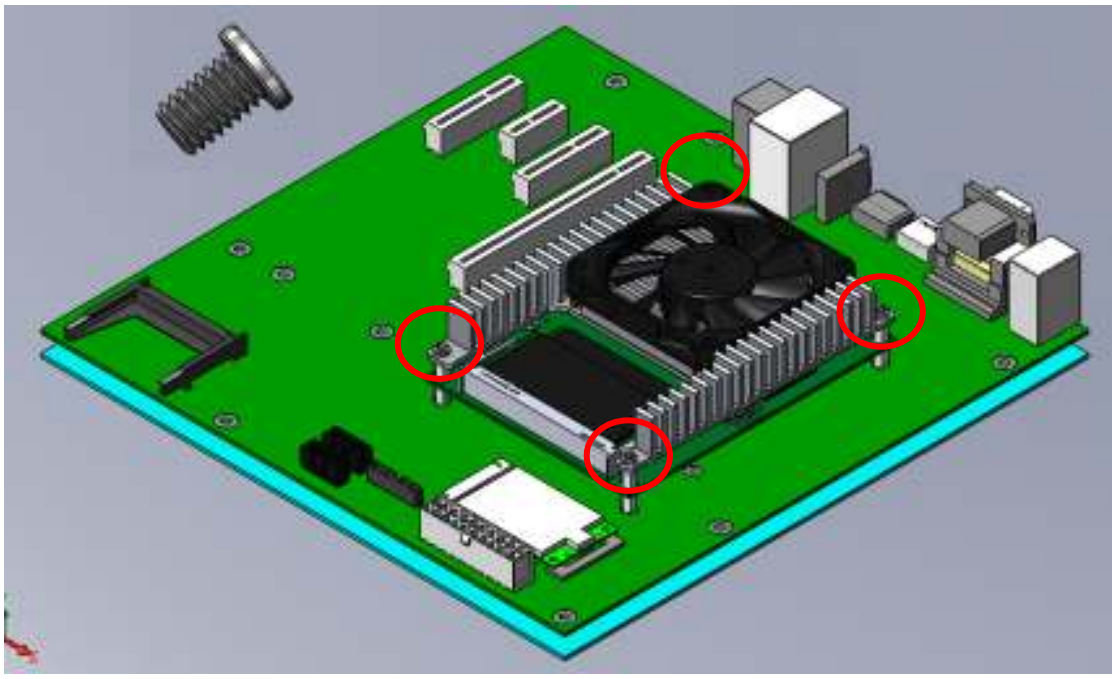


7. Pull heat spreader on Module





8. **Assemble heat spreader by 4 pieces M2.5 screws**



Benefit

This assembly method is friendly for future module upgraded to reduce resource cost.

Chapter 3
Hardware Description

This chapter gives the definitions and shows the positions of jumpers, headers and connector. All of the configuration jumpers on Portwell evaluative Carrier PCOM-C211 are in the proper position. The default settings shipped from factory are marked with a star (★).

3.1 Connector Allocation

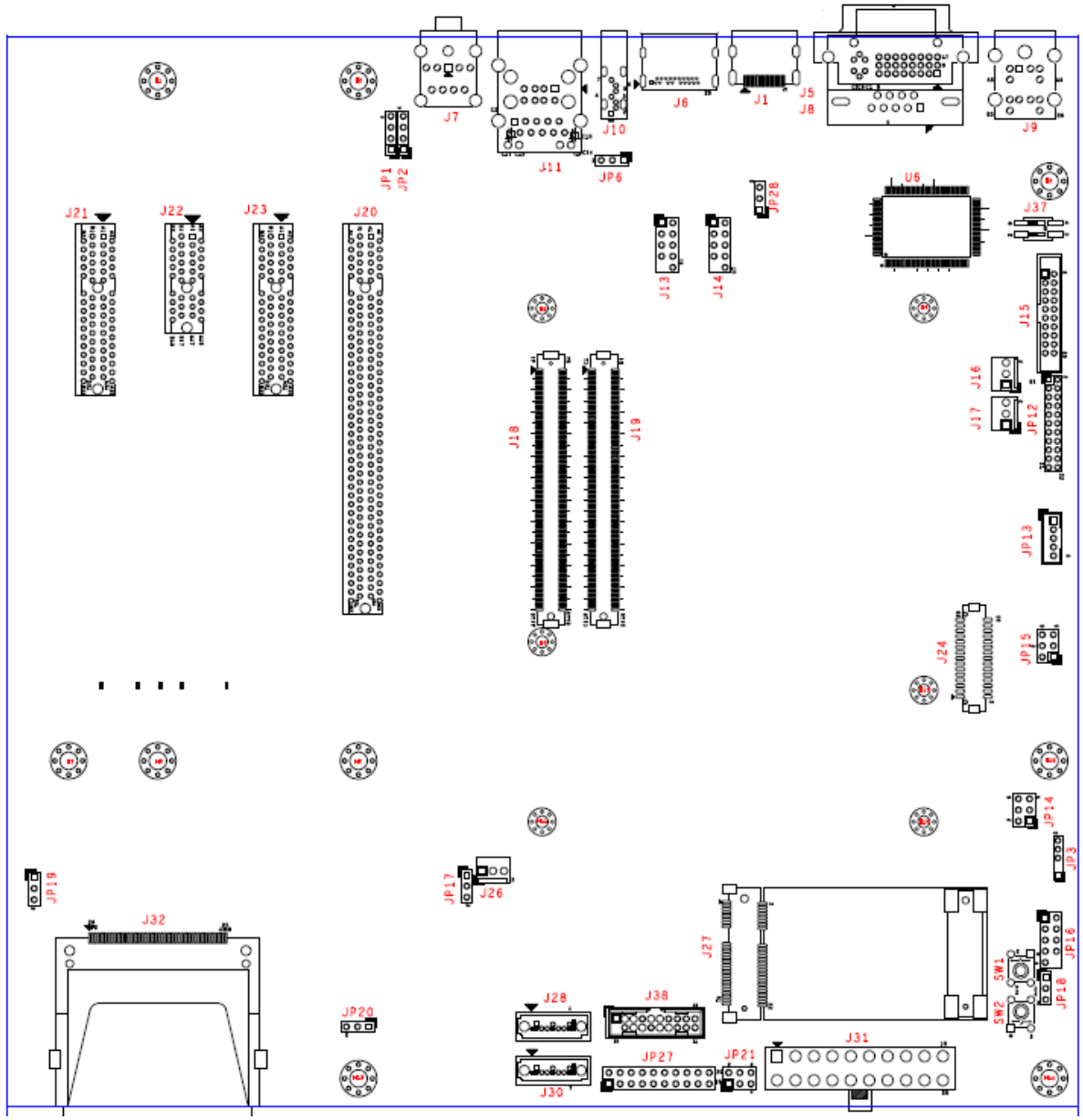


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Figure 3-1 PCOM-C600 Jumper & Connector Location

Pin Header Function List

JP1、JP2	Side and rear surround header	
JP3	SMBus connector	
JP12	COM1 Function	
JP13	LVDS Invertor Connector	
JP14	LVDS Back light Power	
JP15	LVDS Power	
JP16	Front Panel Header	
JP17	Setting BIOS Header	
JP18	Auto Power On	
JP19	CF Power select	
JP20	CMOS Setting	
JP21	SDVO/DVI AUX_SEL Setting	
JP27	Miscellaneous Header	
JP28	HDMI/DP AUX_SEL Setting	
SW1	Power Button	
SW2	Reset Bottom	

JP1、JP2: Side and rear surround header

Pin	Signal Name	Pin	Signal Name
1	LINE_OUT_R	2	LINE_OUT_L
3	GND	4	GND

JP3: SMBus connector

	Signal Description
1	BF_SMB_CLK
2	NC
3	GND
4	BF_SMB_DATA
5	3V_DUAL

JP12：COM1 Function

	Jumper Setting (Pin close)
*RS-232	5-6、9-11、10-12、15-17、16-18
RS-422	3-4、7-9、8-10、13-15、14-16、21-22
RS-485	1-2、7-9、8-10、19-20
Ps. Pin 19、20、21、22 can be saved, but S/W should keep the COM1 RTS signal low when using RS-422	

JP13：LVDS Invertor Connector

1	BACKLIGH_EN
2	GND
3	12V
4	BRIGHTNESS_CTRL
5	5V

JP14：LVDS Back light Power

	Backligh_EN Voltage Select
*1-2, 2-4	5V, Active High
1-3, 4-6	12V, Active High
3-5, 2-4	5V, Active Low
3-5, 4-6	12V, Active Low

JP15：LVDS Power

	LVDS Voltage Select (VDD)
*1-3	3V
3-5	5V
3-4	12V

JP16：Front Panel Header

	Jumper Setting Describe
2-4	SUS_LED
1-3	IDEACT # &SATA_ACTLED#
5-6	Power Button
7-8	RESET

JP17：Setting BIOS Header

	Jumper Setting Describe
1-2	Module BIOS Disable
*2-3	Module BIOS selection

JP18：Auto Power On

	Auto Power On
1-2	Enable
*2-3	Disable

JP19：CF Power select

	CF Power Select
*1-2	3V
2-3	5V

JP20：CMOS Setting

	Jumper Setting Describe
*1-2	Default
2-3	Clean CMOS

JP21：SDVO/DVI AUX_SEL Setting

	SDVO/DVI AUX_SEL Setting
*1-3	Enable SDVO
3-5	Disable SDVO
*2-4	Enable DVI
4-6	Disable SDVO

JP27：Miscellaneous Header

Pin	Signal Name	Pin	Signal Name
1	12V	2	12V
3	FAN_TACHIN	4	FAN_PWMOUT
5	3V	6	3V
7	12V	8	12V
9	SER0_TX	10	SER0_RX
11	SER1_TX	12	SER1_RX
13	12V	14	12V
15	12V	16	12V
17	LID#	18	SLEEP#
19	3V	20	3V

JP28：HDMI/DP AUX_SEL Setting

	HDMI/DP AUX_SEL Setting
*1-2	Enable DP
2-3	Enable HDMI

Connector Function List

Connector	Function	Remark
U1	HDMI connector	
J5	DVI-I connector	
J6	Display port	
J7	2_Port_AudioJack	
J8	COM-PORT	
J9	PS/2 K/B and Mouse connector	
J10	e-SATA	
J11	RJ45 + USB*2 connector	
J13、J14	Onboard USB Header	
J15	TPM connector	
J16、J17、J26	Fan connector	
J18、J19	COM-Express connector	
J20	PCI-E*16 Slot	
J21	PCI-E*4 Slot (ADD2 card only)	
J22、J23	PCI-E*1 Slot	
J24	LVDS connector	
J27	Mini-PCIE/mSATA	
J28、J29、J30	SATA port	
J31	ATX Power connector	
J32	SIO select	

J1: HDMI connector

Pin	Signal Name	Pin	Signal Name
1	DP_LANE0	11	GND
2	GND	12	DP3_LANE3#
3	DP_LANE1#	13	N/C
4	DP3_LANE1	14	N/C
5	GND	15	HDMI_DDC_CLK
6	DP3_LANE1#	16	HDMI_DDC_DATA
7	DP_LANE2	17	GND
8	GND	18	+5VF_HDMI_CON
9	DP_LANE2#	19	DP2_HPD_IN
10	DP3_LANE3		

J5: DVI-I connector

Pin	Signal Name	Pin	Signal Name
1	DP3_LANE0#	17	DP3_LANE2#
2	DP3_LANE0	18	DP3_LANE2
3	GND	19	Ground
4	N/C	20	N/C
5	N/C	21	N/C
6	DVI-D_SCL	22	Ground
7	DVI-D_SDA	23	DP3_LANE3#
8	CRT_VSYNC	24	DP3_LANE3
9	DP3_LANE1#	C1	CRT_RED
10	DP3_LANE1	C2	CRT_GREEN
11	GND	C3	CRT_BLUE
12	N/C	C4	CRT_HSYNC
13	N/C	C5	GND
14	VCC	C6	GND
15	GND	CG1	GND
16	DVI-D_HPD	CG2	GND

J6: Display port

Pin	Signal Name	Pin	Signal Name
1	DP_D1+	2	Ground
3	DP_D1-	4	DP_D2+
5	Ground	6	DP_D2-
7	DP_D3+	8	Ground
9	DP_D3-	10	DP_D4+
11	Ground	12	DP_D4-

13	Ground	14	Ground
15	DPB_AUX_C_P	16	Ground
17	DPB_AUX_C_N	18	DP_HPD_IN
19	Ground	20	VCC3

J7: 2_Port_AudioJack

Pin	Signal Name
A1	GND
A2	LINE_OUT1_L
A3	GND
A4	LINE_OUT1_JD
A5	LINE_OUT1_R
B2	LINE_IN1_L
B3	GND
B4	LINE_IN1_JD
B5	LINE_IN1_R

J8: D-SUB

PIN No.	Signal Description	PIN No.	Signal Description
1	DCD#1	2	RXD#
3	TXD#	4	DTR#
5	GND	6	DSR#
7	RTS#	8	CTS#
9	RI#	CG1	

J9: PS/2 K/B and Mouse connector

PIN No.	Signal Description	PIN No.	Signal Description
A1	KB_DT	B1	MS_DT
A2	N/C	B2	N/C
A3	GND	B3	GND
A4	5V_DUAL	B4	5V_DUAL
A5	KB_CK	B5	MS_CK
A6	N/C	B6	N/C

J10: e-SATA

PIN No.	Signal Description
1	GND
2	ESATA_RXP5
3	ESATA_RXN5

4	GND
5	ESATA_TXN5
6	ESATA_TXP5
7	GND

J11: RJ45 + USB*2 connector

PIN No.	Signal Description	PIN No.	Signal Description
B1	5V_DUAL	C1	+VCT_LAN
B2	DF_USB_0N_C	C2	LAN_MDI0P
B3	DF_USB_0P_C	C3	LAN_MDI0N
B4	GND	C4	LAN_MDI1P
A1	5V_DUAL	C5	LAN_MDI1N
A2	DF_USB_1N_C	C6	LAN_MDI2P
A3	DF_USB_1P_C	C7	LAN_MDI2N
A4	GND	C8	LAN_MDI3P
CG1	GND	C9	LAN_MDI3N
CG2	GND	C10	GND
CG2	GND	C11	LAN_LED_LINK#ACT
CG2	GND	C12	3V_DUAL
CG3	GND	C13	LAN_LED_100#
CG4	GND	C14	LAN_LED_1000#
CG5	GND	CG6	GND
CG7	GND	CG8	GND

J13、14: Onboard USB Header

Pin	Signal Name	Pin	Signal Name
1	5V_DUAL	2	5V_DUAL
3	DF_USB_N_R	4	DF_USB_N_R
5	DF_USB_P_R	6	DF_USB_P_R
7	GND	8	GND
		10	GND

J15: TPM connector

Pin	Signal Name	Pin	Signal Name
1	CLK_PCI_SIO	2	GND
3	LFRAME#	4	NC
5	BUF_PLT_RST#	6	VCC
7	LAD3	8	LAD2
9	VCC3	10	LAD1
11	LAD0	12	GND

13	BF_SMB_CLK	14	BF_SMB_DATA
15	3V_DUAL	16	SERIRQ
17	GND	18	NC
19	PM_SUS_STAT#	20	NC

J16、17、26: Fan connector

PIN No.	Signal Description
1	GND
2	12V
3	SENSE

J18、J19: COM-Express connector (PICMG 2.0)

Row A		Row B		Row C		Row D	
A1	GND (FIXED)	B1	GND (FIXED)	C1	GND (FIXED)	D1	GND (FIXED)
A2	GBE0_MDI3-	B2	GBE0_ACT#	C2	GND	D2	GND
A3	GBE0_MDI3+	B3	LPC_FRAME#	C3	(NC)	D3	(NC)
A4	GBE0_LINK100#	B4	LPC_AD0	C4	(NC)	D4	(NC)
A5	GBE0_LINK1000#	B5	LPC_AD1	C5	GND	D5	GND
A6	GBE0_MDI2-	B6	LPC_AD2	C6	(NC)	D6	(NC)
A7	GBE0_MDI2+	B7	LPC_AD3	C7	(NC)	D7	(NC)
A8	GBE0_LINK#	B8	LPC_DRQ0#	C8	GND	D8	GND
A9	GBE0_MDI1-	B9	LPC_DRQ1#	C9	(NC)	D9	(NC)
A10	GBE0_MDI1+	B10	LPC_PCLK	C10	(NC)	D10	(NC)
A11	GND (FIXED)	B11	GND (FIXED)	C11	GND (FIXED)	D11	GND (FIXED)
A12	GBE0_MDI0-	B12	PWRBTN#	C12	(NC)	D12	(NC)
A13	GBE0_MDI0+	B13	SMB_CLK	C13	(NC)	D13	(NC)
A14	GBE0_CTREF	B14	SMB_DAT	C14	GND	D14	GND
A15	SUS_S3#	B15	SMB_ALERT#	C15	DP1_LANE6	D15	DP1_CTRLCLK_AUX
A16	SATA0_TX+	B16	SATA1_TX+	C16	DP1_LANE6#	D16	DP1_CTRLDATA_AUX#
A17	SATA0_TX-	B17	SATA1_TX-	C17	(NC)	D17	(NC)
A18	SUS_S4#	B18	SUS_STAT#	C18	(NC)	D18	(NC)
A19	SATA0_RX+	B19	SATA1_RX+	C19	PCIE_RX6+	D19	PCIE_TX6+
A20	SATA0_RX-	B20	SATA1_RX-	C20	PCIE_RX6-	D20	PCIE_TX6-
A21	GND (FIXED)	B21	GND (FIXED)	C21	GND (FIXED)	D21	GND (FIXED)
A22	SATA2_TX+	B22	SATA3_TX+	C22	(NC)	D22	(NC)
A23	SATA2_TX-	B23	SATA3_TX-	C23	(NC)	D23	(NC)
A24	SUS_S5#	B24	PWROK	C24	DP1_HDP	D24	RSVD
A25	SATA2_RX+	B25	SATA3_RX+	C25	DP1_LANE4	D25	RSVD
A26	SATA2_RX-	B26	SATA3_RX-	C26	DP1_LANE4#	D26	DP1_LANE0/SDVO1_RED+
A27	BATLOW#	B27	WDT	C27	RSVD	D27	DP1_LANE0#/SDVO1_RED-
A28	ATA_ACT#	B28	HDA_SDIN2	C28	RSVD	D28	RSVD (NC)
A29	HDA_SYNC	B29	HDA_SDIN1	C29	DP1_LANE5	D29	DP1_LANE1
A30	HDA_RST#	B30	HDA_SDIN0	C30	DP1_LANE5#	D30	DP1_LANE1#
A31	GND (FIXED)	B31	GND (FIXED)	C31	GND (FIXED)	D31	GND (FIXED)
A32	HDA_BITCLK	B32	SPKR	C32	DP2_CTRLCLK_AUX	D32	DP1_LANE2
A33	HDA_SDOUT	B33	I2C_CLK	C33	DP2_CTRLDATA_AUX#	D33	DP1_LANE2#
A34	BIOS_DIS0#	B34	I2C_DAT	C34	DP2_AUX_SEL	D34	DP1_AUX_SEL
A35	THRMTRIP#	B35	THRM#	C35	(NC)	D35	RSVD (NC)
A36	USB6-	B36	USB7-	C36	DP3_CTRLCLK_AUX	D36	DP1_LANE3/SDVO1_CLK+
A37	USB6+	B37	USB7+	C37	DP3_CTRLDATA_AUX#	D37	DP1_LANE3#/SDVO1_CLK-
A38	USB_6_7_OC#	B38	USB_4_5_OC#	C38	DP3_AUX_SEL	D38	RSVD
A39	USB4-	B39	USB5-	C39	DP3_LANE0	D39	DP2_LANE0
A40	USB4+	B40	USB5+	C40	DP3_LANE0#	D40	DP2_LANE0#
A41	GND (FIXED)	B41	GND (FIXED)	C41	GND (FIXED)	D41	GND (FIXED)
A42	USB2-	B42	USB3-	C42	DP3_LANE1	D42	DP2_LANE1
A43	USB2+	B43	USB3+	C43	DP3_LANE1#	D43	DP2_LANE1#
A44	USB_2_3_OC#	B44	USB_0_1_OC#	C44	DP3_HPD	D44	DP2_HPD
A45	USB0-	B45	USB1-	C45	RSVD	D45	RSVD
A46	USB0+	B46	USB1+	C46	DP3_LANE2	D46	DP2_LANE2
A47	VCC_RTC	B47	EXCD1_PERST#	C47	DP3_LANE2#	D47	DP2_LANE2#
A48	EXCD0_PERST#	B48	EXCD1_CPPE#	C48	RSVD	D48	RSVD
A49	EXCD0_CPPE#	B49	SYS_RST#	C49	DP3_LANE3	D49	DP2_LANE3
A50	LPC_SERIRQ	B50	CB_RESET#	C50	DP3_LANE3#	D50	DP2_LANE3#
A51	GND (FIXED)	B51	GND (FIXED)	C51	GND (FIXED)	D51	GND (FIXED)
A52	PCIE_TX5+	B52	PCIE_RX5+	C52	PEG_RX0+	D52	PEG_TX0+
A53	PCIE_TX5-	B53	PCIE_RX5-	C53	PEG_RX0-	D53	PEG_TX0-
A54	GPI0	B54	GPO1	C54	TYPE0# (NC)	D54	PEG_LANE_RV# (NC)
A55	PCIE_TX4+	B55	PCIE_RX4+	C55	PEG_RX1+	D55	PEG_TX1+

A56	PCIE_TX4-	B56	PCIE_RX4-	C56	PEG_RX1-	D56	PEG_TX1-
A57	GND	B57	GPO2	C57	TYPE1# (NC)	D57	TYPE2# (NC)
A58	PCIE_TX3+	B58	PCIE_RX3+	C58	PEG_RX2+	D58	PEG_TX2+
A59	PCIE_TX3-	B59	PCIE_RX3-	C59	PEG_RX2-	D59	PEG_TX2-
A60	GND (FIXED)	B60	GND (FIXED)	C60	GND (FIXED)	D60	GND (FIXED)
A61	PCIE_TX2+	B61	PCIE_RX2+	C61	PEG_RX3+	D61	PEG_TX3+
A62	PCIE_TX2-	B62	PCIE_RX2-	C62	PEG_RX3-	D62	PEG_TX3-
A63	GPI1	B63	GPO3	C63	RSVD (NC)	D63	RSVD (NC)
A64	PCIE_TX1+	B64	PCIE_RX1+	C64	RSVD (NC)	D64	RSVD (NC)
A65	PCIE_TX1-	B65	PCIE_RX1-	C65	PEG_RX4+	D65	PEG_TX4+
A66	GND	B66	WAKE0#	C66	PEG_RX4-	D66	PEG_TX4-
A67	GPI2	B67	WAKE1#	C67	RSVD (NC)	D67	GND
A68	PCIE_TX0+	B68	PCIE_RX0+	C68	PEG_RX5+	D68	PEG_TX5+
A69	PCIE_TX0-	B69	PCIE_RX0-	C69	PEG_RX5-	D69	PEG_TX5-
A70	GND (FIXED)	B70	GND (FIXED)	C70	GND (FIXED)	D70	GND (FIXED)
A71	LVDS_A0+	B71	LVDS_B0+	C71	PEG_RX6+	D71	PEG_TX6+
A72	LVDS_A0-	B72	LVDS_B0-	C72	PEG_RX6-	D72	PEG_TX6-
A73	LVDS_A1+	B73	LVDS_B1+	C73	GND	D73	GND
A74	LVDS_A1-	B74	LVDS_B1-	C74	PEG_RX7+	D74	PEG_TX7+
A75	LVDS_A2+	B75	LVDS_B2+	C75	PEG_RX7-	D75	PEG_TX7-
A76	LVDS_A2-	B76	LVDS_B2-	C76	GND	D76	GND
A77	LVDS_VDDEN	B77	LVDS_B3+	C77	RSVD (NC)	D77	RSVD
A78	LVDS_A3+	B78	LVDS_B3-	C78	PEG_RX8+	D78	PEG_TX8+
A79	LVDS_A3-	B79	LVDS_BKLT_EN	C79	PEG_RX8-	D79	PEG_TX8-
A80	GND (FIXED)	B80	GND (FIXED)	C80	GND (FIXED)	D80	GND (FIXED)
A81	LVDS_CLKA+	B81	LVDS_CLKB+	C81	PEG_RX9+	D81	PEG_TX9+
A82	LVDS_CLKA-	B82	LVDS_CLKB-	C82	PEG_RX9-	D82	PEG_TX9-
A83	LVDS_I2CCK	B83	LVDS_BKLT_CTRL	C83	RSVD (NC)	D83	RSVD (NC)
A84	LVDS_I2CDAT	B84	VCC_5V_SBY	C84	GND	D84	GND
A85	GPI3	B85	VCC_5V_SBY	C85	PEG_RX10+	D85	PEG_TX10+
A86	RSVD	B86	VCC_5V_SBY	C86	PEG_RX10-	D86	PEG_TX10-
A87	RSVD	B87	VCC_5V_SBY	C87	GND	D87	GND
A88	PCIE0_CK_REF+	B88	SPI_CS1#	C88	PEG_RX11+	D88	PEG_TX11+
A89	PCIE0_CK_REF-	B89	VGA_RED	C89	PEG_RX11-	D89	PEG_TX11-
A90	GND (FIXED)	B90	GND (FIXED)	C90	GND (FIXED)	D90	GND (FIXED)
A91	SPI_POWER	B91	VGA_GRN	C91	PEG_RX12+	D91	PEG_TX12+
A92	SPI_MISO	B92	VGA_BLU	C92	PEG_RX12-	D92	PEG_TX12-
A93	GPO0	B93	VGA_HSYNC	C93	GND	D93	GND
A94	SPI_CLK	B94	VGA_VSYNC	C94	PEG_RX13+	D94	PEG_TX13+
A95	SPI_MOSI	B95	VGA_DDC_CLK	C95	PEG_RX13-	D95	PEG_TX13-
A96	TPM_PP	B96	VGA_DDC_DAT	C96	GND	D96	GND
A97	TYPE10#	B97	SPI_CS#	C97	RSVD (NC)	D97	RSVD
A98	SER0_TX	B98	RSVD (NC)	C98	PEG_RX14+	D98	PEG_TX14+
A99	SER0_RX	B99	RSVD (NC)	C99	PEG_RX14-	D99	PEG_TX14-
A100	GND (FIXED)	B100	GND (FIXED)	C100	GND (FIXED)	D100	GND (FIXED)
A101	SER1_TX	B101	FAN_PWNOUT	C101	PEG_RX15+	D101	PEG_TX15+
A102	SER1_RX	B102	FAN_TACHIN	C102	PEG_RX15-	D102	PEG_TX15-
A103	LID#	B103	SLEEP#	C103	GND	D103	GND
A104	VCC_12V	B104	VCC_12V	C104	VCC_12V	D104	VCC_12V
A105	VCC_12V	B105	VCC_12V	C105	VCC_12V	D105	VCC_12V
A106	VCC_12V	B106	VCC_12V	C106	VCC_12V	D106	VCC_12V
A107	VCC_12V	B107	VCC_12V	C107	VCC_12V	D107	VCC_12V
A108	VCC_12V	B108	VCC_12V	C108	VCC_12V	D108	VCC_12V
A109	VCC_12V	B109	VCC_12V	C109	VCC_12V	D109	VCC_12V
A110	GND (FIXED)	B110	GND (FIXED)	C110	GND (FIXED)	D110	GND (FIXED)

J20: PCI-E*16 Slot

Pin	Signal Name	Pin	Signal Name
A1	GND	B1	+12V
A2	+12V	B2	+12V
A3	+12V	B3	NC
A4	GND	B4	GND
A5	NC	B5	SMB_CLK
A6	NC	B6	SMB_DATA
A7	NC	B7	GND
A8	NC	B8	VCC3
A9	VCC3	B9	NC
A10	VCC3	B10	3VSB
A11	BUF_PLT_RST#	B11	PCIE_WAKE#

A12	GND	B12	NC
A13	REFCLK4+	B13	GND
A14	REFCLK4-	B14	G_PET0+
A15	GND	B15	G_PET0-
A16	G_PER0+	B16	GND
A17	G_PER0-	B17	SDVO_CTRL_CLK
A18	GND	B18	GND
A19	NC	B19	G_PET1+
A20	GND	B20	G_PET1-
A21	G_PER1+	B21	GND
A22	G_PER1-	B22	GND
A23	GND	B23	G_PET2+
A24	GND	B24	G_PET2-
A25	G_PER2+	B25	GND
A26	G_PER2-	B26	GND
A27	GND	B27	G_PET3+
A28	GND	B28	G_PET3-
A29	G_PER3+	B29	GND
A30	G_PER3-	B30	NC
A31	GND	B31	SDVO_CTRL_DATA
A32	NC	B32	GND
A33	NC	B33	G_PET4+
A34	GND	B34	G_PET4-
A35	G_PER4+	B35	GND
A36	G_PER4-	B36	GND
A37	GND	B37	G_PET5+
A38	GND	B38	G_PET5-
A39	G_PER5+	B39	GND
A40	G_PER5-	B40	GND
A41	GND	B41	G_PET6+
A42	GND	B42	G_PET6-
A43	G_PER6+	B43	GND
A44	G_PER6-	B44	GND
A45	GND	B45	G_PET7+
A46	GND	B46	G_PET7-
A47	G_PER7+	B47	GND
A48	G_PER7-	B48	PCIE_PRSNT
A49	GND	B49	GND
A50	NC	B50	G_PET8+
A51	GND	B51	G_PET8-
A52	G_PER8+	B52	GND
A53	G_PER8-	B53	GND

A54	GND	B54	G_PET9+
A55	GND	B55	G_PET9-
A56	G_PER9+	B56	GND
A57	G_PER9-	B57	GND
A58	GND	B58	G_PET10+
A59	GND	B59	G_PET10-
A60	G_PER10+	B60	GND
A61	G_PER10-	B61	GND
A62	GND	B62	G_PET11+
A63	GND	B63	G_PET11-
A64	G_PER11+	B64	GND
A65	G_PER11-	B65	GND
A66	GND	B66	G_PET12+
A67	GND	B67	G_PET12-
A68	G_PER12+	B68	GND
A69	G_PER12-	B69	GND
A70	GND	B70	G_PET13+
A71	GND	B71	G_PET13-
A72	G_PER13+	B72	GND
A73	G_PER13-	B73	GND
A74	GND	B74	G_PET14+
A75	GND	B75	G_PET14-
A76	G_PER14+	B76	GND
A77	G_PER14-	B77	GND
A78	GND	B78	G_PET15+
A79	GND	B79	G_PET15-
A80	G_PER15+	B80	GND
A81	G_PER15-	B81	PCIE_PRSNT
A82	GND	B82	NC

J21: PCI-E*4 Slot (ADD2 card Only)

Pin	Signal Name	Pin	Signal Name
A1	NC	B1	+12V
A2	+12V	B2	+12V
A3	+12V	B3	NC
A4	GND	B4	GND
A5	NC	B5	SMB_CLK
A6	NC	B6	SMB_DATA
A7	NC	B7	GND
A8	NC	B8	VCC3
A9	VCC3	B9	NC
A10	VCC3	B10	3VSB

A11	BUF_PLT_RST#	B11	PCIE_WAKE#
A12	GND	B12	NC
A13	REFCLK2+	B13	GND
A14	REFCLK2-	B14	DPB_LANE0_P
A15	GND	B15	DPB_LANE0_N
A16	DPB_LANE5_P	B16	GND
A17	DPB_LANE5_N	B17	DPB_CTRLCLK_AUX_P
A18	GND	B18	GND
A19	NC	B19	DPB_LANE1_P
A20	GND	B20	DPB_LANE1_N
A21	DPB_LANE4_P	B21	GND
A22	DPB_LANE4_N	B22	GND
A23	GND	B23	DPB_LANE2_P
A24	GND	B24	DPB_LANE2_N
A25	DPB_LANE6_P	B25	GND
A26	DPB_LANE6_N	B26	GND
A27	GND	B27	DPB_LANE3_P
A28	GND	B28	DPB_LANE3_N-
A29	DDPB_HPD	B29	GND
A30	NC	B30	NC
A31	GND	B31	DPB_CTRLDATA_AUX_N
A32	NC	B32	GND

J22: PCI-E*1 Slot

Pin	Signal Name	Pin	Signal Name
A1	NC	B1	+12V
A2	+12V	B2	+12V
A3	+12V	B3	NC
A4	GND	B4	GND
A5	NC	B5	SMB_CLK
A6	NC	B6	SMB_DATA
A7	NC	B7	GND
A8	NC	B8	VCC3
A9	VCC3	B9	NC
A10	VCC3	B10	3VSB
A11	BUF_PLT_RST#	B11	PCIE_WAKE#
A12	GND	B12	NC
A13	REFCLK1+	B13	GND
A14	REFCLK1-	B14	PCIE_TXP4
A15	GND	B15	PCIE_TXN4
A16	PCIE_RXP4	B16	GND
A17	PCIE_RXN4	B17	NC

A18	GND	B18	GND

J23: PCI-E*4 Slot

Pin	Signal Name	Pin	Signal Name
A1	NC	B1	+12V
A2	+12V	B2	+12V
A3	+12V	B3	NC
A4	GND	B4	GND
A5	NC	B5	SMB_CLK
A6	NC	B6	SMB_DATA
A7	NC	B7	GND
A8	NC	B8	VCC3
A9	VCC3	B9	NC
A10	VCC3	B10	3VSB
A11	BUF_PLT_RST#	B11	PCIE_WAKE#
A12	GND	B12	NC
A13	REFCLK0+	B13	GND
A14	REFCLK0-	B14	PCIE_TXP0
A15	GND	B15	PCIE_TXN0
A16	PCIE_RXP0	B16	GND
A17	PCIE_RXN0	B17	DPB_CTRLCLK_AUX_P
A18	GND	B18	GND
A19	NC	B19	PCIE_TXP1
A20	GND	B20	PCIE_TXN1
A21	PCIE_RXP1	B21	GND
A22	PCIE_RXN1	B22	GND
A23	GND	B23	PCIE_TXP2
A24	GND	B24	PCIE_TXN2
A25	PCIE_RXP2	B25	GND
A26	PCIE_RXN2	B26	GND
A27	GND	B27	PCIE_TXP3
A28	GND	B28	PCIE_TXN3
A29	PCIE_RXP3	B29	GND
A30	PCIE_RXN3	B30	NC
A31	GND	B31	NC
A32	NC	B32	GND

J24: LVDS connector

Pin	Signal Name	Pin	Signal Name
1	Power	2	Power

3	LVDSA_Data0	4	LVDSA_Data0#
5	LVDSA_Data1	6	LVDSA_Data1#
7	LVDSA_Data2	8	LVDSA_Data2#
9	LVDSA_Data3	10	LVDSA_Data3#
11	LVDSA_CLKP	12	LVDSA_CLKN
13	LVDS_DDC_DATA	14	LVDS_DDC_DATA
15	GND	16	GND
17	LVDSB_Data0	18	LVDSB_Data0#
19	LVDSB_Data1	20	LVDSB_Data1#
21	LVDSB_Data2	22	LVDSB_Data2#
23	LVDSB_Data3	24	LVDSB_Data3#
25	LVDSB_CLKP	26	LVDSB_CLKN
27	NC	28	NC
29	GND	30	GND

J27: Mini-PCIE/mSATA

PIN No.	Signal Description	PIN No.	Signal Description
1	WAKE#	2	VCC3
3	NC	4	GND
5	NC	6	1.5V
7	CLKREQ#	8	NC
9	GND	10	NC
11	miniPCIE_CLK-	12	NC
13	miniPCIE_CLK+	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	NC
21	GND	22	BUF_PLT_RST#
23	mSATA/PCIE_RX-	24	3V_DUAL
25	mSATA/PCIE_RX+	26	GND
27	GND	28	1.5V
29	GND	30	BF_SMB_CLK

31	mSATA/PCIE_TX-	32	BF_SMB_DATA
33	mSATA/PCIE_TX+	34	GND
35	GND	36	miniPCIE_USB-
37	NC	38	miniPCIE_USB+
39	NC	40	GND
41	3V_DUAL	42	NC
43	DEV_SEL	44	NC
45	NC	46	NC
47	NC	48	1.5V
49	NC	50	GND
51	NC	52	VCC3

J28, J29, J30: SATA port

Pin	Signal Name
1	GND
2	SATA_TXP
3	SATA_TXN
4	GND
5	SATA_RXN
6	SATA_RXP
7	GND

J32: CF connector

Pin	Signal Name	Pin	Signal Name
1	GND	2	IDE_DD3
3	IDE_DD4	4	IDE_DD5
5	IDE_DD6	6	IDE_DD7
7	IDE_CS#0	8	GND
9	GND	10	GND
11	GND	12	GND
13	VCC_CF	14	GND
15	GND	16	GND
17	GND	18	IDE_A2

19	IDE_A1	20	IDE_A0
21	IDE_DD0	22	IDE_DD1
23	IDE_DD2	24	NC
25	NC	26	NC
27	IDE_DD11	28	IDE_DD12
29	IDE_DD13	30	IDE_DD14
31	IDE_DD15	32	IDE_CS#1
33	NC	34	IDE_IOR#
35	IDE_IOW#	36	VCC_CF
37	IDE_IRQ	38	VCC_CF
39	SLAVE/MASTER	40	NC
41	IDE_BRST#	42	IDE_IORDY
43	IDE_REQ	44	IDE_DACK#
45	IDE_LED	46	IDE_BLID
47	IDE_DD8	48	IDE_DD9
49	IDE_DD10	50	GND

J31: ATX Power connector

PIN No.	Signal Description	PIN No.	Signal Description
1	ATX 3.3V	11	ATX 3.3V
2	ATX 3.3V	12	ATX -12V
3	ATX Ground	13	ATX Ground
4	ATX 5V	14	ATX Power On Control (PS-ON)
5	ATX Ground	15	ATX Ground
6	ATX 5V	16	ATX Ground
7	ATX Ground	17	ATX Ground
8	ATX Power Good	18	ATX -5V
9	ATX 5V Stand By	19	ATX 5V
10	ATX 12V	20	ATX 5V

J37: SIO select

PIN No.	Signal Description
1-2	On (Enable SIO)
3-4	Off (Disable SIO)